2: Hockings E-4,5 (1962-1977) 1980
AW50 Badaga AW50

to spit in the proper place." With this attitude prevalent, the spread of various viruses and of *Mycobacterium tuberculosis* has been greatly curtailed. The regular washing of the body and shaving of pubic hair have also contributed to health by restricting the incidence of bodily fungi and lice-borne diseases.

The ecological significance of these various beliefs and practices is that as the Nilgiri population increased in the nineteenth century and some village streams began to be polluted by this new pressure, the Badagas managed to avoid some contamination by switching from drinking stream water and fresh milk to tea, coffee and sometimes alcohol, all of which would be relatively free of bacterial organisms. The new balance with the environment that this change brought about was certainly one factor in the remarkable increase in the Badaga population since the advent of the British (Appendix 2).

At the same time that this change in drinking habits was occurring their eating habits were undergoing an equally radical transformation. In part this was due to the several dozen types of fruit, grain and vegetable introduced from Europe by British settlers and adopted by most Badagas. The variety of their diet was thus greatly increased.

VILLAGE NAMES

A study of the present Badaga hamlet names yields a body of insights about the early settlements formed during the two and a half centuries preceding the first British report (Keys, 1812).

Perhaps a somewhat lyrical description of the Nilgiri Plateau may at this point aid the reader's understanding of what is to follow:

> The plateau is a true tableland, its average height being very uniform. But there is not a square mile of level ground in the whole of it, its surface being broken by endless undulations which in places swell into considerable and distinct ranges. It rises most abruptly from the plains below it; and on the west, above the Ouchterlony Valley and southwards, its sides are often sheer, bare walls, hundreds of feet in height and too steep even for trees to obtain a footing on them. Elsewhere dense forest covers almost the whole of its slopes . . .
>
> It is first of all divided east and west into two fairly equal but

2: Hockings E-4,5 (1962-1977) 1980
AM50 Badaga AM50

133 dissimilar parts by a range of heights running north and south of which Dodabetta ('big mountain') is the tallest . . .

311 East and south of the Dodabetta range . . . the plateau . . . is
318 extensively cultivated by the immigrant tribe known as the Badagas. This does not improve its appearance; the great
137 forests have mostly been felled and their place taken by the poorest low scrub or by fields of miserable cereals surrounding
134 the squat red-tiled houses of numerous hamlets; the country is deeply scoured by every shower of rain until the infertile red and yellow sub-soil clays are laid bare; and, owing to the Badagas' former custom of shifting their cultivation from year to year to new patches of land, grass has been prevented from getting any firm hold on the denuded hill-sides. Only on the slopes of the plateau (which are too steep for cultivation) and in a few isolated Government reserves, does the forest flourish in its virgin beauty.

133 West of Dodabetta, however, the Badagas are more rare;
137 hardly a field or a village (except the little clusters of huts belonging to the pastoral Tódas) is to be seen; and the country consists of a sea of rounded green hills, rising now and again
[311] into more prominent heights and ranges, which are covered with short grass . . . These rounded hills are divided each from each by streams or bogs, and nestling in their wrinkles are beautiful little woods, . . . the edges of which have been so sharply defined by years of grazing and (perhaps) grass fires that they look almost like artificial plantations. . . .(Francis, 1908, 3–5).

128 A few of the village names defy any interpretation—either by me
103 or by my best informants—probably because they have changed too much to be recognizable now as Badagu substantives. But leaving these aside we still have in the list of toponyms which follows a corpus of 311 meaningful toponyms for a community of about 362 hamlets, 18 of them no longer occupied. Some toponyms are repeated in several places, (e.g., Naḍuhaṭṭi, 'middle hamlet', or Hosaṭṭi, 'new hamlet'); numbers given after some explanations indicate where such a toponym occurs more than once in the Nilgiris. We will now examine the meanings of the toponyms, which are given here in a phonemic transcription of Badagu (a Dravidian language).

2: Hockings E-4,5 (1962-1977) 1980
AW50 Badaga AW50

243 The most common grain is what the natives call Korrali, which... grows best in the colder districts Kundenad and Mekanad where the other finer grains do not grow.

Sāmé... which is considered the best kind of the several small grains of the Hills. It grows in the warmer districts and must have better soil.

Tenney or Navoney... which also grows only in warm places...

Varagu... which grows only on the slopes of the Hills in feverish places and requires... a warmer climate, than the Hill plateau affords.

Ragy... grows also only in places where the cold Monsoon wind cannot come... (Metz, 1864, 152-153)

In general a careful observer, the Rev. Metz (who roamed the plateau daily for a quarter of a century) mentions here *baragu* and *ra:gi*, two species that were cultivated mainly by Kurumbas and Irulas on the lower slopes because of the greater warmth needed. Though grown occasionally in the lowest Badaga hamlets, neither was an important crop. The other three species were the main subsistence crops for Badagas.

175 We are led to the conclusion that the Badagas displaced
M Kurumbas and perhaps some Todas as well in the zone which they
361 made their own, and which was best suited to dry cultivation of
[182] their millets. While the upper limits of the zone were apparently determined by the viability of these millets, the lower limits may have been determined not by horticultural requirements but by the elevation above which malarial parasites will not breed, about 1,000 meters. (The full development of the *plasmodium* parasites in mosquito requires a minimum daily temperature of 60°F (15.6°C), which is only maintained at the lower elevations relegated to the Kurumbas, Irulas and others.) In the mid-nineteenth century Hodgson (1856, 499-500) noted plateau sites 'where formerly Kurumba villages existed but where none are now found. It is well known that the Kurumbas were driven down from the healthful summit to the malarious slope of the hills...'

●318 Not only did the Badaga settlers displace residents from these
[175] several tribes: they also removed much forest cover and radically changed the Nilgiri ecology, in the view of many experts, well before the first British planters arrived in the eighteen-forties.

There can be little question that these tracts, which are now

2: Hockings E-4,5 (1962-1977) 1980
AW50 Badaga AW50

318 given up almost wholly to the plough or hoe, were once covered with dense jungle, except the more stony ridges and heights. This is evidenced by the numerous shóla trees, single or in groups of two or three, standing generally near a rock or stream, which have owed their escape from the general destruction to the superstitious fears of the people, who regard them as the homes of the unseen genii of the place. The frequent occurrence of the suffix *kád*, jungle or forest, in names of localities, where now hardly a tree is to be found, is additional proof . . . (Grigg, 1880, 9).

000 This pronounced ecological change has generated a number of studies exploring the likelihood that the more westerly grasslands now occupied by the Todas were also originally heavily forested areas that succumbed to annual fires started by these herdsmen (e.g., Noble, 1967; Blasco 1971). While that question is of little significance in our present study, it does emphasize the manner in which ecological change may be so devastating as to alter the environment almost beyond recognition after a toponym has been assigned to a site there.

NOTES

103 128 1. The + used in these lists merely links the morphemes in a word, and is not to be considered as a symbol of juncture. Numbers in parentheses indicate the number of times a toponym is repeated.

2. On cold nights frost can form.

195 3. Euphony is an important feature of Badaga speech and is a characteristic in hundreds of their proverbs; e.g.,
hattu jina sa:la/
ten days debt,
ondu jina su:la
one day venereal disease:
i.e., 'For ten days it will be a debt, but one day it will become a venereal sore.'

103 4. These were Tu:ḍu:ru, Kaṇaṭṭi, Kolekombe, Kuriyamale, Bekode, Tuha:ḍa, Hatare, Malligo:re, Tiddere, Kaggeri, Hayu:ru, Koṅamotta, Ha:ḷaṭṭaṇe, Ha:ḷa:ḍa, Honnimaṇṇu, Baṇahaṭṭi, and Gonne:ri. Since these names are almost unknown to present-day Badagas we cannot be precise about their pronunciation or meaning.

000 5. Remnants of this population now live in nearby Ko:ḍe:ru and can still recall something of their history.

361 103 6. These latter were named Beḷḷaṭṭi, Koṭaṭṭi, Kareko:ṭe, Baṇahaṭṭi, Ta:veka:ḍu, Beṇḍaṭṭi, and Pannamaḍai.

000 7. During the past century there have been several well-documented cases of Toda hamlets being abandoned.

133 8. It may be recalled that the Nilgiri Plateau rises to an elevation of 2634 meters in Doḍḍabeṭṭa, 'Great Mountain'.

[p. 70 is blank]

4: Hockings E-5 (1962-1977) 1980
AW50 Badaga AW50

(2) The lower plateau, ranging from about 5,000 to a peak at 8,640 feet, where over 350 Badaga hamlets are located. (3) The escarpments and lower slopes, primarily the home of the Kurumba and Irula tribes, who are swidden cultivators still practising some hunting and gathering, and important to Badagas for their sorcery. (4) The more westerly Waina:ḍ Plateau, averaging about 3,000 feet in elevation, which is the territory of Kurumbas, Paniyas, Maunta:dan and Waina:ḍ Chettis, and of eight hamlets of Badagas, here known as Waina:ḍ Gaudas. Irrigated rice, and tea and coffee, are the most important crops there today.

Since the culture of the Waina:ḍ Gaudas has been dealt with elsewhere (Ranga 1934; Hockings 1979a), and in any case is more like a variant subculture of the Maunta:dan Chettis than like that of the Nilgiri Badagas, I will pay no attention to them in the present study, but confine myself to the Badagas of the Nilgiri Massif.

The environs of these Nilgiri Badagas have been discussed in some detail in a paper on Badaga placenames and cultural ecology (Hockings 1974), and have been accurately described in the following account of the lower and upper plateau:

> The plateau is a true tableland, its average height being very uniform. But there is not a square mile of level ground in the whole of it, its surface being broken by endless undulations which in places swell into considerable and distinct ranges. It rises most abruptly from the plains below it; and on the west. . .its sides are often sheer, bare walls, hundreds of feet in height and too steep even for trees to obtain a footing on them. Elsewhere dense forest covers almost the whole of its slopes.
>
> It is first of all divided east and west into two fairly equal but dissimilar parts by a range of heights running north and south of which Dodabetta ('big mountain') is the tallest. . . .
>
> East and south of the Dodabetta range. . . the plateau. . .is extensively cultivated by the immigrant tribe known as the Badagas. This does not improve its appearance; the great forests have mostly been felled and their place taken by the poorest low scrub or by fields of miserable cereals surrounding the squat red-tiled houses of numerous hamlets; the country is deeply scoured by every shower of rain until the infertile red and yellow sub-soil clays are laid bare; and, owing to the Badagas' former custom of

41 Hockings E-5 (1962-1977) 1980
AW50 Badaga AW50

shifting their cultivation from year to year to new patches of land, grass has been prevented from getting any firm hold on the denuded hill-sides. Only on the slopes of the plateau (which are too steep for cultivation) and in a few isolated Government reserves, does the forest flourish in its virgin beauty.

West of Dodabetta, however, the Badagas are more rare; hardly a field or a village (except the little clusters of huts belonging to the pastoral Todas) is to be seen. (Francis 1908: 3-4)

Let us then see how, against this backdrop, several hundred Badaga therapists have over the centuries developed a unique medical adaptation to a unique tropical montane environment.

Badaga Medical History

1.5. The history of health care among the Badagas is entirely speculative. Nonetheless the history of the community itself is clear enough, and on this framework (Hockings 1979a) we can at least postulate three phases in the development of Badaga therapy (1.5-1.8). This sketch may later prove inadequate, for it is largely guesswork, but heuristically necessary for our understanding of problems connected with the elaboration of a specifically Badaga montane curative system from its roots in a very different equatorial environment at a much lower elevation.

The first phase began after the year 1565 with the fall of the Vijayanagar Empire. It was this political act and the associated Muslim invasion that impelled the initial Badaga refugees to leave the plains of Mysore District and settle on the much higher Nilgiri Massif immediately to the south. These people were a mere fortuitous selection of one or two hundred from those who made up the vast genetic pools of the Mysore castes; but after settling on the hills their patterns of intermarriage were such that they became more like another isolate. Despite a preference for endogamy, though, their pool was repeatedly augmented by the arrival of occasional new settlers from the Mysore Plains who were accepted into the growing Badaga community.

A century or so after these first settlers arrived, some refugees forming the Kanakka clan also came to the Nilgiris. Their special importance lay in the fact that until the mid-nineteenth century the Kanakkas were the only Badagas who were somewhat literate. As

2: Hockings E-4,5 (1962-1977) 1980
AW50 Badaga AW50

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[following p. 248-A]

41 Hockings E-5 (1962-1977) 1980
AW50 Badaga AW50

also contributed to a reduction in the spread of viruses, particularly as the cattle are generally kept away from these courtyards fronting the houses.

The ecological significance of these various beliefs and practices is that as the Nilgiri population increased in the nineteenth century and some village streams began to be polluted by this new pressure, the Badagas managed to avoid some contamination by switching from drinking stream water and fresh milk to tea, coffee and sometimes alcohol, all of which would be relatively free of bacterial organisms. The new balance with the environment that this change brought about was certainly one factor in the remarkable increase in the Badaga population ever since the advent of the British (Diagram 1).

At the same time that this change in drinking habits was occurring their eating habits were undergoing an equally radical transformation. In part this was due to the several dozen types of fruit, grain and vegetable introduced from Europe by British settlers and adopted by most Badagas (2.1, Table 2; Hockings 1973: 867). The variety of their diet was thus greatly improved. Also the earlier habit of eating a midday meal, often in air (Harkness 1832: 111), tended to cease as more and more Badaga adults began working for an hourly or daily wage on the plantations and construction projects initiated by the British, and as increasing numbers of children spent the day in school. In the later nineteenth and early twentieth centuries it thus became usual for Badagas to consume only two meals a day, generally in their own homes, one at sunrise and the other in the evening. The importance of this practice from a hygienic viewpoint was that, because flies are normally active only during daytime, "eating at night or in the early morning may protect food from fly-borne contamination" (Alland 1970: 59). Any change of diet or of custom that tended to reduce the human intake of bacterial organisms was reflected in the greatly increased life expectancy during the past century and a half.

1.8. By the later nineteenth and the twentieth centuries successful exploration of the botanical realm and this steadily increasing Badaga population had, through a process of interaction and by individual experiments, observations of animal browsing, or other acts of discovery about which we can know nothing, developed the third phase in their medical history — the full-fledged therapeutic system described in this book. As an increasingly heavy work-load was

6: Noble K-4,5 (1962-1963) 1989
(1800-1963)
AW50 Badaga AW50
Kota AW55
Kurumba AW56
Toda AW60
Madras Tribes AW63
Kasuva

137 If imported species continue to be planted, they may some day be the dominant vegetative forms on the upper Nilgiris.

Temperate grassland formation. Annual fires set by men have
137 certainly contributed to grassland formation on the upper Nilgiris.
318 There is much historical evidence for the burning of old, tough, dried grasses to promote the growth of young, tender grass more edible for livestock (Appendix C). Badagas, Kotas, Todas, Cannarese, Malayalees, and Tamilians inhabiting the upper Nilgiris still burn grasses annually. Firing of grasslands is such a deeply ingrained practice that the Madras Forest Department encounters many difficulties in trying to enforce laws to protect forested or planted tracts. A record dating to A. D. 1117 contains the earliest mention of a Nilgiri ethnic group (Derrett and Duncan 1957: 47). The Todas referred to were in all likelihood pastoralists who fired grasses annually. If one thinks in terms of grasslands being burned over annually for centuries and possibly millennia, it is not difficult to envision grasslands expanding at the expense of adjacent forests. Every time flames cross grassy areas and reach shola edges they do some damage to trees. In turn, damaged trees are more easily attacked by diseases and insects. Slowly, through the years, trees along shola edges perish and grasses can then advance a little more.

Terrain on the upper Nilgiris is conducive to fire spread, for
133 the region is characteristically eroded into rounded highland hills
(134) and mountains. Whenever forests are destroyed, sheet erosion removes
132 soil, and relief features then tend to become more rounded. Although

132 winds blow with highest velocities during easterly and westerly monsoons, those in the dry, grass-burning season blow long and steadily enough to fan flames over the undulating terrain. Surface configur-
137 ation plays a vital role in the eventual highly uneven distribution of grasslands and sholas (Plate IV; A, B, and C). In a section where disturbance is negligible, shola may stretch across large expanses between two streams (interfluvial shola). With increased disturbance, grassland spreads between stream courses. When flames reach valley edges, downward slope halts or slows their spread sufficiently to enable shola survival in valleys. Sholas will eventually be located mainly in valleys and may then form a dendritic pattern (dendritic shola). The importance of surface configuration is also revealed by the fact that small sholas (patch sholas) manage to exist in interfluvial depressions where vegetation is protected from upward moving flames. If fires through time are able to change vegetation on the landscape, one would suspect that they could ultimately produce grasslands in depressions and valleys. In the Nilgiris such is apparently the case, for occasional valley bottoms and adjacent hillsides are almost entirely in grass. Where such extreme changes have occurred, streams may become intermittent.

137 Not all grasslands were slow to form; some grassy tracts
•318 probably came into existence within a decade. Todas long have employed axes to fell trees, so they could obtain planks for hut construction, logs and branches to build fences, or firewood to heat food, produce
(241) warmth, and cremate their dead. Badagas, Kotas, and more recent migrants to the Nilgiris cleared large tracts for crop production, and

6: Noble K-4,5 (1962-1963) 1989
(1800-1963)
AN50 Badaga AN50
Kota AN55
Kurumba AN56
Toda AN60
Madras Tribes AN63
Kasuva

137 318 (241) have utilized wood for the same purposes as Todas. Some abandoned agricultural tracts are now covered by grass, while others are covered by shrubs or tree growth. Annual firings and grazing play vital roles in grassland formation and maintenance. Examples of rapid forest removal leading to grassland formation are offered by clearings presently formed by Badagas near Toda hamlets. After trees are axed down (241) and disposed of, potatoes are cultivated. As cultivation continues, surviving scattered trees are slowly cut out. If after a few years cultivation is suspended due to soil deterioration or non-renewal of a contract with Todas, the once cultivated plots may rapidly become grass covered (Plate IV; D, E, and F). New grassland formation and maintenance result from buffaloes grazing on grasses which have sprung up over the plots, coupled in many cases with periodic burning of the grasses.

172 Megalithic Cult members once living on the upper Nilgiris may have been farmers and livestock rearers. The question of whether Megalithic monuments were erected before or after ancestral Todas came to the upper Nilgiris remains unanswered. Apart from fragments of numerous pottery buffaloes in Megalithic sites, there is little conjectural association between the monument builders and Todas - unless ancestral Todas are assumed to have been bronze-iron age warriors whose descendents abandoned warfare and turned to herding only buffaloes. Construction dates for Nilgiri Megalithic sites have not been established, but may tentatively be related to a period covering a few centuries before and after 1 A.D.[9] On lids of funerary urns buried within stone circles on mountain tops (Plate V, A), figures resembling horses,

241 with mixed plants are also maintained, but these gardens may be miles away from their owners' houses and on outer Nilgiri slopes. Because
423 land is divided equally among sons upon a father's death, extensive
428 land fragmentation has taken place. To prevent further fragmentation, there is now a tendency for sons to share and jointly manage land.
311 Communal pastures are close enough to permit the keeping of livestock
361 in communities. Individually owned and communal plots covered with
245 acacia, eucalyptus, and temperate fruit trees now occur near Badaga
137 communities. Due to intensive or slowly continued tempera-- forest
• 318 clearance, only a few small remnant patches of natural fore main on the slopes near many hamlets and villages.

361 The outstanding features of Badaga hamlets and villages are the
351 house-rows with compacted earth courtyards edged by low walls (Figure 17). House rows within a single community usually parallel each other and are frequently aligned in an easterly-westerly direction, but on
361 flatter terrain they may surround a courtyard on two sides. Because
364 the Badagas consider it sinful to throw waste water toward the sun,
783 Lord Shiva's emblem, through alignment of houses in an easterly-westerly direction housewives may throw waste water through the back door or over the front courtyard wall without throwing it toward the sun.
841 One dwelling within a community house-row is set apart as a confinement place for menstruating women or women undergoing a postnatal pollution
368 period. In addition to dwellings, house-like temples are built into
243 house-rows. Grain is threshed and agricultural produce or firewood is
313 dried on the courtyards. These also serve as playgrounds for children,
857 as sites for performance of ceremonial rites, and as dance arenas
796
535

TEXT CONTINUED ON PAGE 231